

# INTERNATIONAL-TYPE SEARCH REPORT

Search request No.  
PCT/SE2004/001742

## Box No. II Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)

This international-type search report has not been established in respect of certain claims for the following reasons:

1. ☐ Claims Nos.:  
because they relate to subject matter not required to be searched by this Authority, namely:
  
2. ☐ Claims Nos.:  
because they relate to parts of the national application that do not comply with the prescribed requirements to such an extent that no meaningful international-type search can be carried out, specifically:

## Box No. III Observations where unity of invention is lacking (Continuation of item 3 of first sheet)

This International Searching Authority found multiple inventions in this national application, as follows:

See next page

1. ☐ As all required additional search fees were timely paid by the applicant, this international-type search report covers all searchable claims.
2. ☐ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this international-type search report covers only those claims for which fees were paid, specifically claims Nos.:
4. ☒ No required additional search fees were timely paid by the applicant. Consequently, this international-type search report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

### Remark on Protest

- ☐ The additional search fees were accompanied by the applicant's protest.  
☐ No protest accompanied the payment of additional search fees.

The International Search Authority considers that there are 3 inventions covered by the claims indicated as follows:

I: Claims 1-13 and 14-22 directed to a method and an apparatus for magnetron sputtering comprising a stationary magnetic mirror trap in order to guide the plasma flow towards and past or beyond the position of the work piece and therefrom back again.

II: Claims 23 and 24 directed to an apparatus for magnetron sputtering comprising filtering plates for adsorption of reactive gas ions and neutral particles.

III: Claim 25 directed to an apparatus for magnetron sputtering in which sputtering-, reactive and/or processing gases are supplied directly to the work piece processing part of the chamber.

As the invention according to claim 25 could be searched without any additional effort, the search report covers inventions I and III above.

## INTERNATIONAL SEARCH REPORT

International application No.

PCT/SE 2004/001742

## A. CLASSIFICATION OF SUBJECT MATTER

IPC7: H01J 37/34, C23C 14/35

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC7: C23C, H01J

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

SE,DK,FI,NO classes as above

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

EPO-INTERNAL, WPI DATA, PAJ, INSPEC

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 6077403 A (MASAHICO KOBAYASHI ET AL), 20 June 2000 (20.06.2000), column 3, line 10 - column 7, line 19; column 7, line 65 - column 8, line 50, figures 1,4, abstract  --	1-22
A	I. Petrov et al Use of an externally applied axial magnetic field to control ion/neutral flux ratios incident at the substrate during magnetron sputter deposition J. Vac. Sci. Technol. A 10(5), Sept/Oct 1992 AN 4298806 see page 3288-3287  --	1-22

☒ Further documents are listed in the continuation of Box C.☒ See patent family annex.

\* Special categories of cited documents:

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier application or patent but published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance: the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance: the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

"&amp;" document member of the same patent family

Date of the actual completion of the international search

12 April 2005

Date of mailing of the international search report

14 -04- 2005

Name and mailing address of the ISA/  
Swedish Patent Office  
Box 5055, S-102 42 STOCKHOLM  
Facsimile No. +46 8 666 02 86

Authorized officer

Bo Gustavsson/MN  
Telephone No. +46 8 782 25 00

## INTERNATIONAL SEARCH REPORT

International application No.

PCT/SE 2004/001742

## C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 5196105 A (ALBERT FEUERSTEIN ET AL), 23 March 1993 (23.03.1993), see whole document  --	1-22
A	P. Losbichler et al Surface and Coatings Technology 97 (1997) 567-573 Non-reactively sputtered TiN and TiB <sub>2</sub> films: influence of activation energy on film growth  --	1-22, 25
X	EP 0347567 A2 (LEYBOLD AKTIENGESELLSCHAFT), 27 December 1989 (27.12.1989)  -- -----	25

**INTERNATIONAL SEARCH REPORT**

Information on patent family members

01/04/2005

International application No.

PCT/SE 2004/001742

US	6077403	A	20/06/2000	JP	11001770 A	06/01/1999
				TW	452601 B	00/00/0000
-----						
US	5196105	A	23/03/1993	DE	4038497 C	20/02/1992
				DE	59101796 D	00/00/0000
				EP	0489239 A,B	10/06/1992
				JP	2556637 B	20/11/1996
				JP	4289167 A	14/10/1992
-----						
EP	0347567	A2	27/12/1989	DE	3821207 A	28/12/1989
				JP	2054764 A	23/02/1990
				US	4931169 A	05/06/1990
-----						